# Honors Chemistry - Nature of Science Lab 1

Stasya

## 1 Lab 1: Chemical and Physical Changes

**Purpose**: Identify changes as chemical or physical.

**Safety**: Read through the procedure and list appropiate precautions.

**Pre-Lab Questions**:

1. Identify each of the following as either chemical or physical changes:
   a. Striking a match
   b. Food spoiling
   c. Breaking a glass
   d. Mowing the grass
   e. Leaves decaying
   f. Boiling water

2. In your own words, state the Law of Conservation of Mass.

3. List the indicators of a chemical change.

4. Identify each of the following as an element, a compound, or a mixture.

   a. Air
   b. Sulfur
   c. Hydrogen gas
   d. Salad
   e. Water
   f. Sodium bicarbonate
   g. Fruit punch
   h. Sodium chloride (table salt)

**Procedure**:

Experiment #1: Combine a small sample of iron fillings and sulfur powder in a weighing boat. Avoid inhaling the sulfur dust. Mix the samples thoroughly with a scoopula. Examine the mixture with a magnifying glass, and record

your observations. Move a magnet under the weigh boat below the mixture and examine it again with the magnifying glass. Record your observations. Throw away your sample in the garbage.

Experiment #2: Transfer a small amount of sodium bicarbonate to a clean dry test tube. Add 10 drops of 3M HCl, one drop at a time. Touch the bottom of the tube. Record all observations and wash the leftovers down the sink.

Experiment #3: Mix a small scoop of sugar with 2 mL of water in a test tube. Put your thumb over the top of the test tube and shake well for one minute. Record all observations and rinse down the sink.

**Data**:

Create a data table with three columns and 3 rows. One column is for Experiment #, one is for recording mass and observations, and the last column is for labeling the experiment as chemical or physical change.

**Post-Lab Questions**:

1. In which experiment(s) did you observe energy changes?

2. In which did you observe the formation of a gas?

3. In which was there a mass change?

4. Explain the mass change.

**Conclusion**:

Using your prior knowledge of physical and chemical changes, write a conclusion explaining how you classified each experiment as exhibiting either a chemical or physical change.

**Sources of Error**:

This section includes and experimental sources of error that occurred in this lab. You should describe specifically how each source of error affected your results. This section should not include human sources of error. There are always experimental error, for any lab. Also keep in mind that valid sources of experimental error are not hypothetical and must have changed your results.